A.   B.   C.

D.   E.   F.

Fig. 1 (PRIOR ART).

A.   B.   C.

D.   E.   F.

Fig. 2 (PRIOR ART).

Bandwidth Efficiency

Capacity boundary, R=C for C/B = log2 (1+(R/B)(E/N))

BE vs E/N trades

BE versus R/B trades

ln2 = 0.693 (bandwidth unlimited) Shannon Limit

E/N (Bit Energy/Noise Energy)

Bandwidth Efficiency r = R/B

Fig. 3 (PRIOR ART).
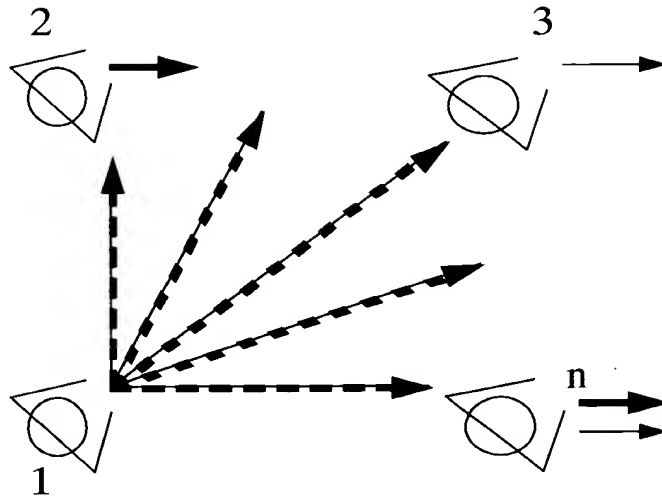
Bit Error Rate

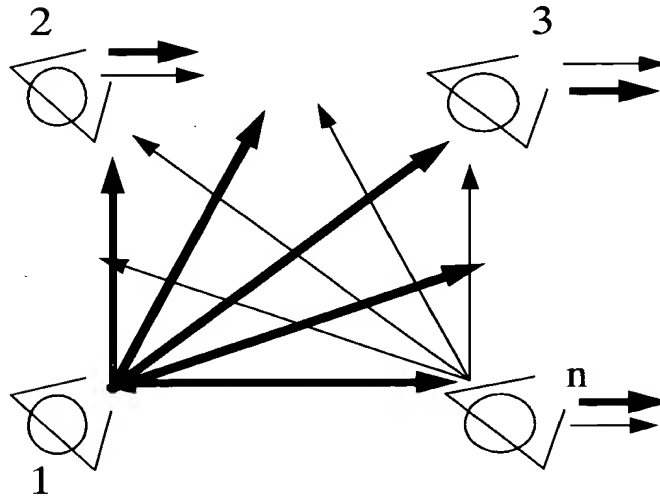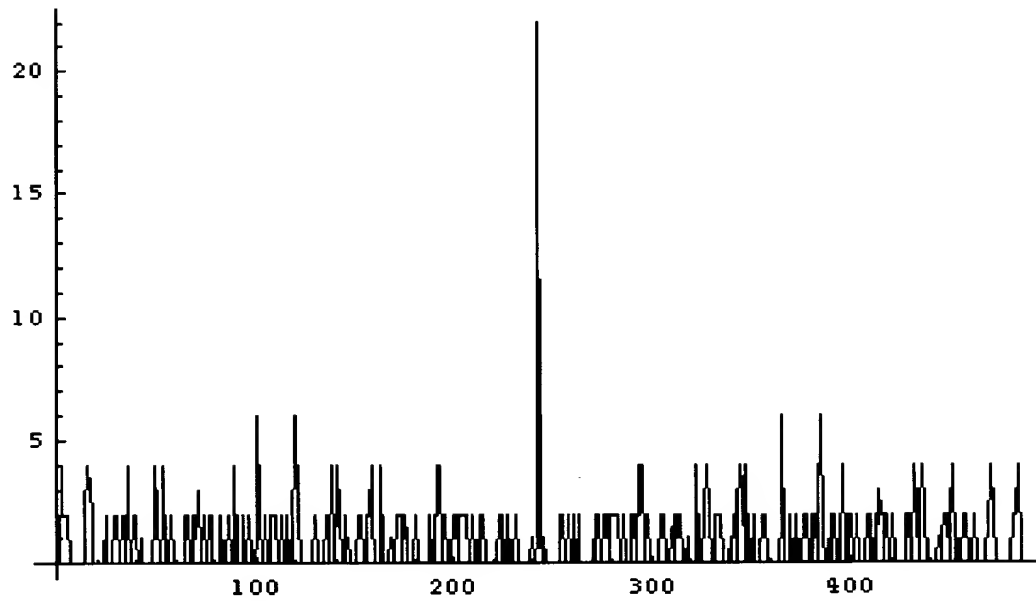

Q = 6
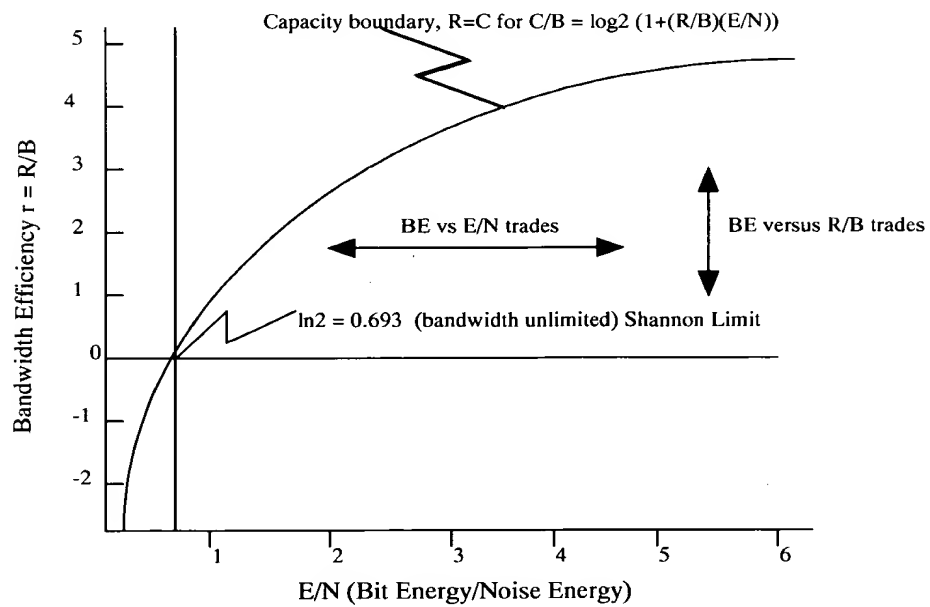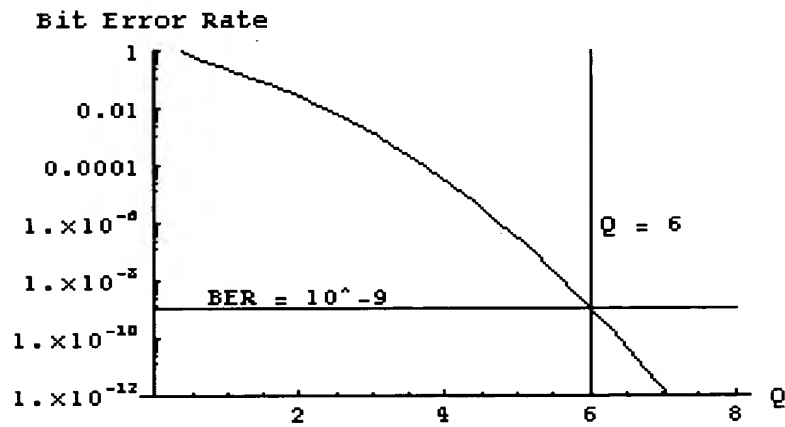
BER = 10^-9
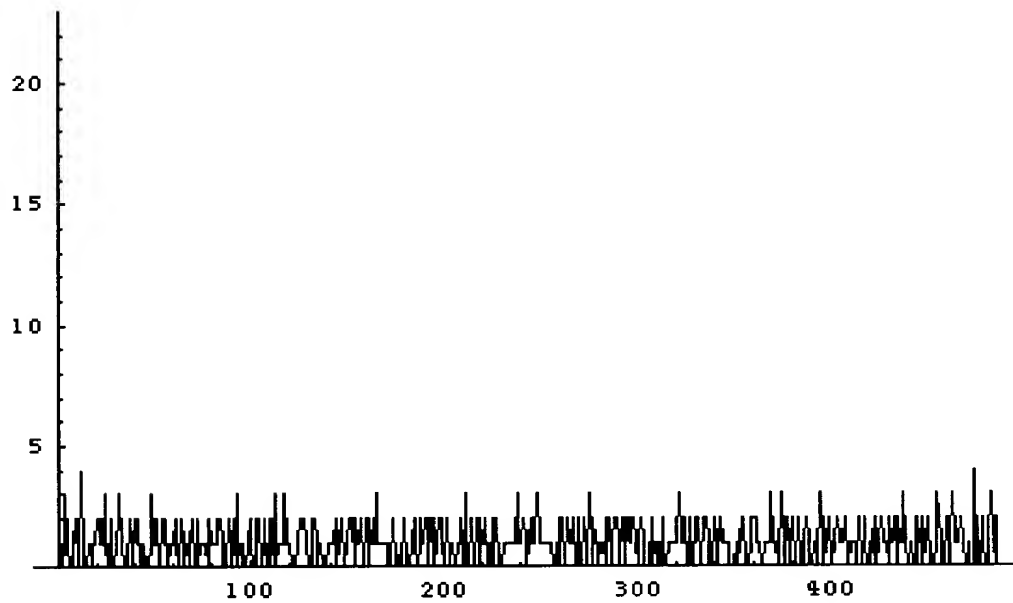
Fig. 4 (PRIOR ART).

A. TDMA

B. CDMA

Fig. 5.

Hyperbolic Congr.Code: p = 23, n = 1, Autocorr.

6A.

Hyperbolic Congr.Code: p = 23, n = 1 & 2, Crosscorr.

6B.

Fig. 6.

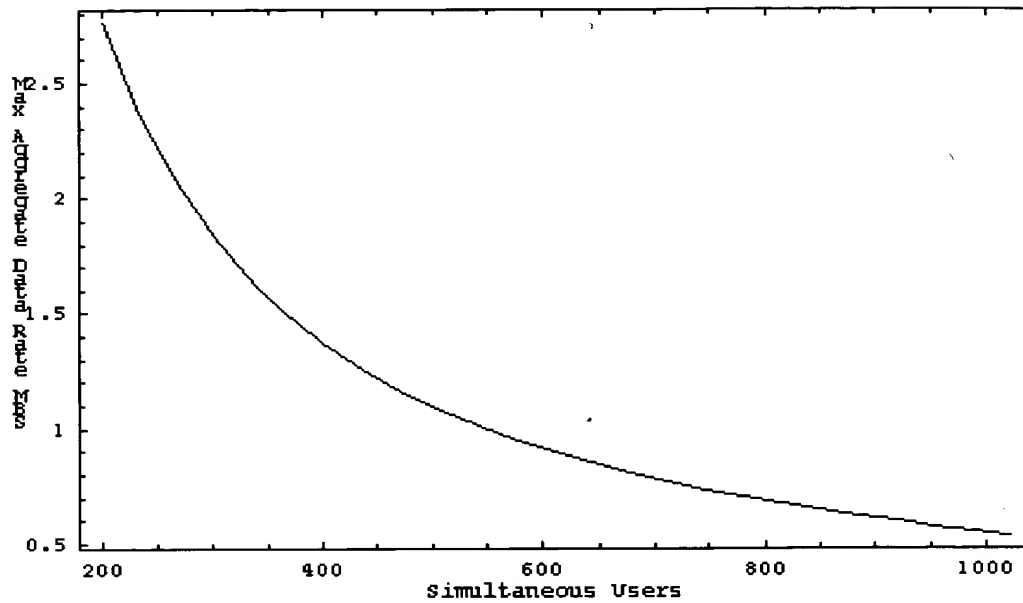MAXIMUM AGGREGATE DATA RATES, Asynchronous CDMA, @1 GHz, P=1021,
BER=10^-9, SNR=21.6 dB

Fig. 7.

MAXIMUM AGGREGATE DATA RATES, Asynchronous CDMA, @1 GHz, P=257,401,601,
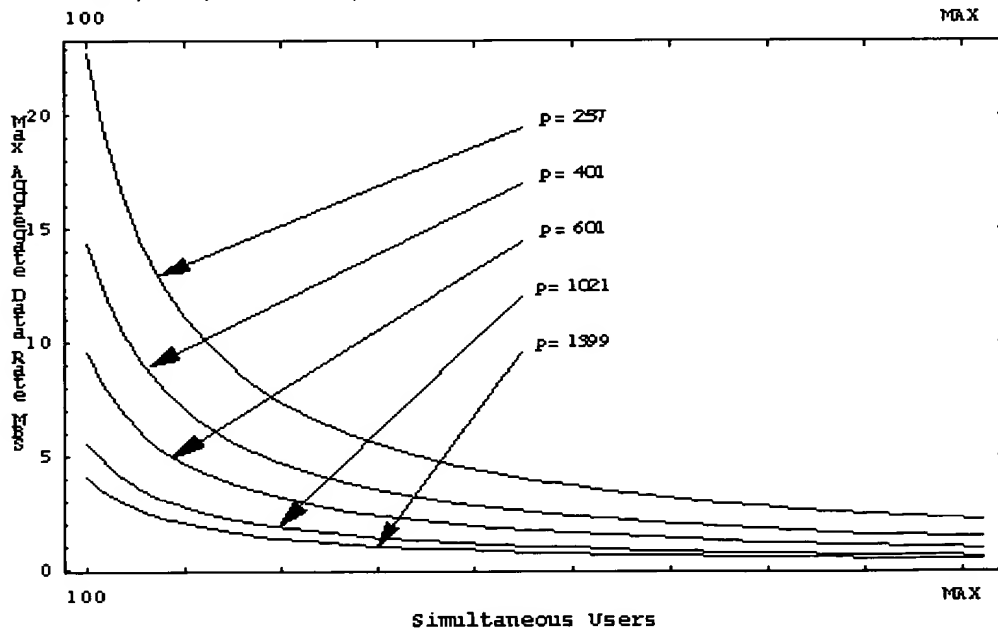1021,1399, BER=10^-9, SNR=21.6 dB

Fig. 8.

MAXIMUM SINGLE CHANNEL DATA RATES, Asynchronous CDMA, @1 GHz, P=1021,
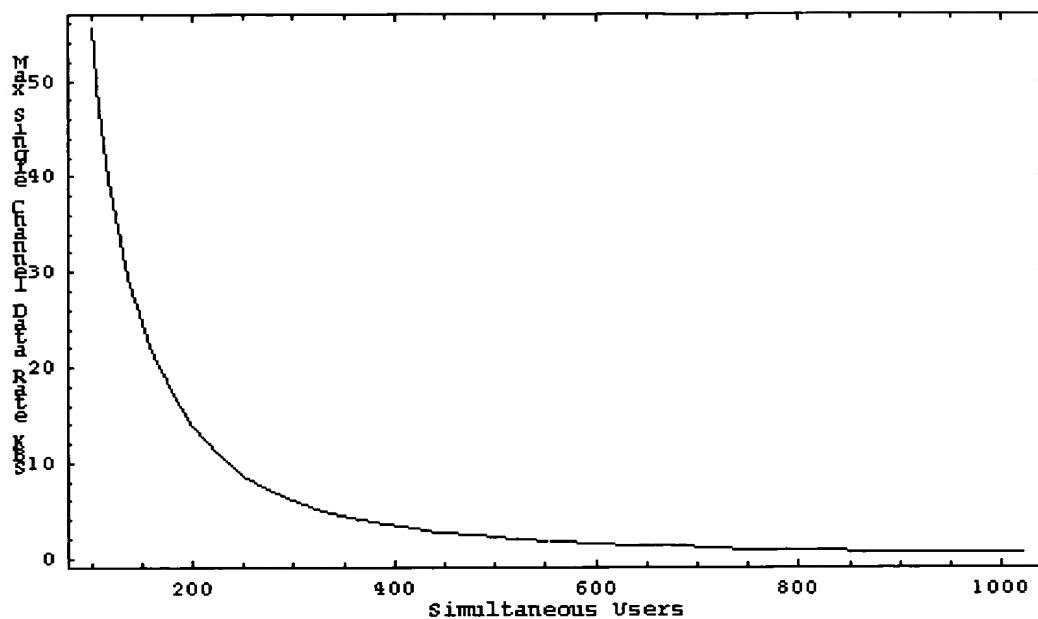BER=10^-9, SNR=21.6 dB

Fig. 9.

MAXIMUM SINGLE CHANNEL DATA RATES, Asynchronous CDMA, @1 GHz, P=1021,
BER=10^-9, SNR=21.6 dB

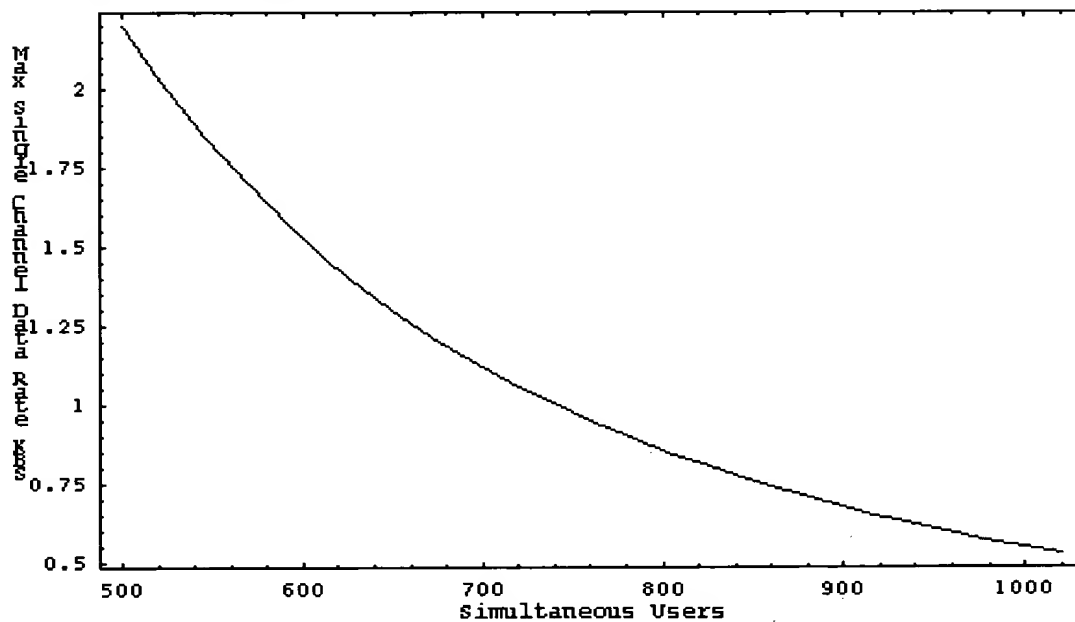**Fig. 10.**

MAXIMUM SINGLE CHANNEL DATA RATES, Asynchronous CDMA, @1 GHz, P=257,
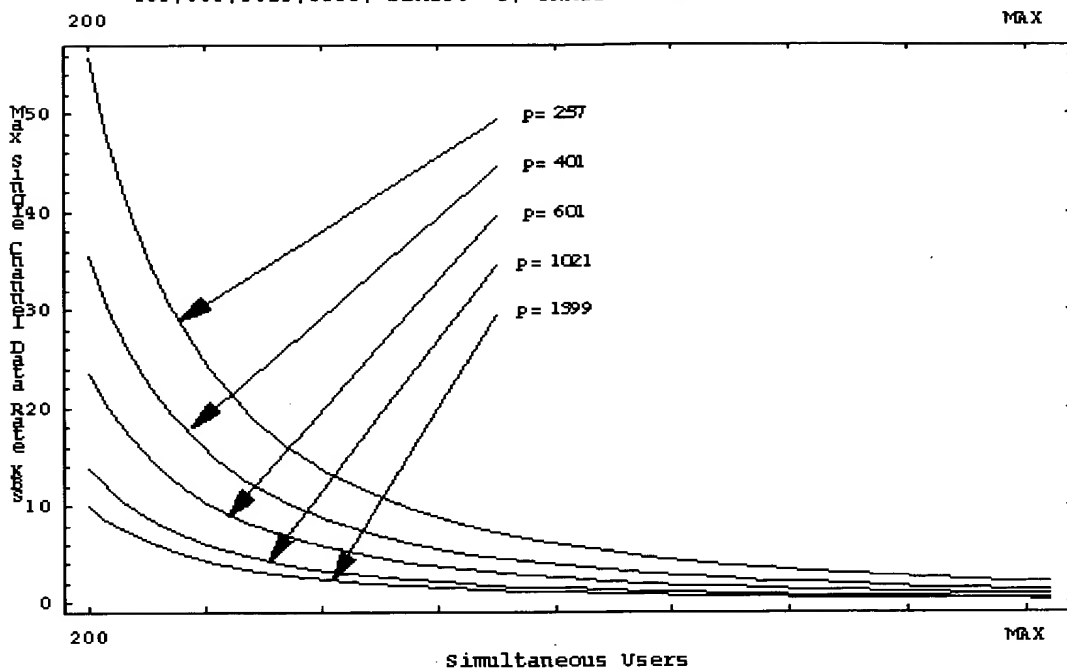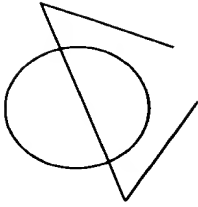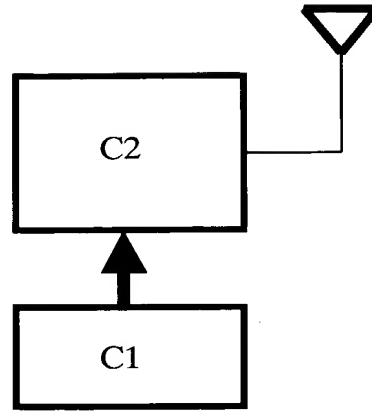401,601,1021,1399, BER=10^-9, SNR=21.6 dB

Fig. 11.

Fig. 12.